attey. dkt. 1674/43755

DECLARATION AND POWER OF ATTORNEY - PATENT APPLICATION

As a below named inventor, I hereby declare that my citizenship, postal address and residence are as stated below; that I verily believe I am the original, first and sole inventor (if only one inventor is named below) or a joint inventor (if plural inventors are named below) of the invention entitled:

CONTROL WHEEL ASSEMBLY FOR TROLLEYS

the specification of which

_____ is attached hereto, or

__x__ was filed on 26 April 1996 as International Application Serial No. PCT/AU96/00246 and

was amended on _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above. I acknowledge the duty to disclose all information known to be material to patentability as defined in 37 CFR §1.56. I hereby claim foreign priority benefits under Title 35, United States Code §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)			Priority Claimed
PN 2658	Australia	28 April 1995	yes
(Number)	(Country)	(Day/Month/Year)	
(Number)	(Country)	(Day/Month/Year)	

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose all information known to be material to patentability as defined in 37 CFR §1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

(Application Serial No.)	(Filing Date)	(Status)

I hereby appoint as principal attorneys James F. McKeown, Reg. No. 25,406; Donald D. Evenson, Reg. No. 26,160; Joseph D. Evans, Reg. No. 26,269; Gary R. Edwards, Reg. No. 31,824; John A. Hankins, Reg. No. 32,029; and Jeffrey D. Sanok, Reg. No. 32,169, to prosecute and transact all business in the Patent and Trademark Office connected with this application and any related United States and international applications. Please direct all communications to:

Evenson, McKeown, Edwards & Lenahan
1200 G Street, N.W., Suite 700
Washington, D.C. 20005
Telephone: (202) 628-8800
Facsimile: (202) 628-8844

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

INVENTOR: WESLEY WILKINSON
Citizenship: Australian
Post Office Address/ South Oakleigh. Victoria 3167. Australia.

Residence: 28 BEMBOKA AVENUE, CLAYTON SOUTH. VICTORIA. AUSTRALIA 3169

3/10/97 _____
(date) (signature of 1st inventor)

ORIGINAL

Attorney Docket: 1674/43755
PATENT

Applicant : WESLEY WILKINSON

Serial No. : 08/845,017 Group Art Unit : 3611

Filed: October 27 1997 Examiner: C. BOTTORFF

Title: CONTROL WHEEL ASSEMBLY FOR TROLLEYS

DECLARATION UNDER 37 C.F.R §1.132

Commissioner for Patents

Washington, D.C. 20231

Sir,

I, Garry Flanigan, hereby declare that:-

1. I am an Australian citizen and resident.

2. I am employed by Stabilus Pty. Ltd. ("Stabilus AU"), (an Australian company of 65 Redwood Drive, Dingley, Victoria, Australia which company is a subsidiary of Stabilus GmbH, Koblenz, Germany - "Stabilus DE") and hold a Bachelor of Engineering degree. Stabilus DE developed, manufactures and sells the gas spring otherwise known as "gas strut". Stabilus AU Imports and manufactures and sells gas struts ("Stabilus struts") in *inter alia*, Australia on behalf of Stabilus DE. (Stabilus AU and Stabilus DE being collectively referred to as "Stabilus").

3. I have been employed by Stabilus AU for about 7 years and as a result, I am well aware of the nature and uses of Stabilus and other gas struts.

4. I am aware of the Wilkinson trolley having four castors and a fixed fifth wheel mounted on a gas strut. I was surprised at the use Wilkinson was making of the gas strut. To the best of my knowledge Wilkinson's use of the gas strut is unprecedented in it's use in the control wheel for trolleys.

I hereby declare that all statements made by me herein of my own knowledge are true and all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like are punishable by fine or imprisonment or both

under §1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application and any patent issuing thereto.

Date January 19, 2001

Signed Garry Flanigan

Garry Flanigan

Attorney Docket: 1674/43755
PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: WESLEY WILKINSON

Serial No.: 08/945,017 Group Art Unit: 3611

Filed: OCTOBER 27, 1997 Examiner: C. BOTTORFF

Title: CONTROL WHEEL ASSEMBLY FOR TROLLEYS

DECLARATION UNDER 37 C.F.R. §1.132

Commissioner for Patents
Washington, D.C. 20231

Sir:

I, Christine BRAY, hereby declare that:

1. I am a citizen of Australia.
2. I am an employee of the Commonwealth Bank of Australia.
3. The Commonwealth Bank of Australia sought to purchase trolleys that were suitable for the movement of bulk coin within branch networks. The Bank's performance requirements included:

a. Steering forces that should be zero to start and greater than 20 N during movement with a 100 kilogram load;

b. Steering forces that must be zero when travelling in a straight line and across slopes;

c. A minimum design load capacity of 500 kilograms;

d. Castors designed to operate on carpeted floor surface;

e. Handle design that improves optimum posture for pushing; and

f. A trolley base no greater than 900x 570 mm.

4. The ERGO-SLED® designed by Trolley Solutions International by Wesley Wilkinson was the only trolley capable of meeting the Bank's requirements.
5. The ERGO-SLED®'s fifth wheel concept having a gas strut allows the trolley to be easily pushed and steered simultaneously, particularly within the space limitations of each bank branch.

6. As a result of the superior performance of the ERGO-SLED®, the Commonwealth Bank of Australia has ordered approximately 450 trolleys, thereby replacing previously used trolleys. Moreover, these trolleys have been accepted as the national standard for the Commonwealth Bank of Australia and have exhibited zero incidents of injury after implementation.

7. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: 29th December 2000 Christine BRAY

Attorney Docket: 1674/43755
PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: WESLEY WILKINSON

Serial No.: 08/945,017 Group Art Unit: 3611

Filed: OCTOBER 27, 1997 Examiner: C. BOTTORFF

Title: CONTROL WHEEL ASSEMBLY FOR TROLLEYS

DECLARATION UNDER 37 C.F.R. §1.132

Commissioner Fion or Patents
Washington, D.C. 20231

Sir:

I, Robert FALLSHAW, hereby declare that:

1. I am a citizen of Australia.

2. I am the Managing Director of Fallshaw Wheels & Castors, located in Victoria, Australia.

3. I have been a wheel and castor maker for 35 years and sell such parts worldwide.

4. I am very aware of trolley design and have written a booklet called *Designing Trolleys* to assist with the proper and effective use of castors. This booklet was first written in 1987 and was revised in 1995.

5. There have been many previous attempts of designing trolleys with a centrally-located fifth control wheel (for example, with mechanical springs and swing arms). However, these known trolleys did not solve the problem of keeping the fifth control wheel in sufficiently firm, but flexible, touch with the ground. Thus, the more successful previously known trolleys were confined to areas with level floors.

6. The trolley developed by Work Systems Technology by Wesley Wilkinson is a substantial improvement from previously known wheeled trolleys. The trolleys having a centrally located control wheel and a gas strut permits heavily loaded trolleys to be easily moved regardless of the undulation of the terrain.

7. The superior performance of this trolley is achieved by the combination of the fifth wheel located at the effective center of the castor array and the center of mass, combined with a mechanism that creates the correct contact characteristic via a gas strut for the control wheel to function properly. The resulting performance is unique and superior to any other trolleys that I have seen. In fact, when I first saw this trolley (approximately 1998), I said "WOW!".

8. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: 28/12/00

Robert FALLSHAW

Attorney Docket: 1674/43755
PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: WESLEY WILKINSON

Serial No.: 08/945,017 Group Art Unit: 3611

Filed: OCTOBER 27, 1997 Examiner: C. BOTTORFF

Title: CONTROL WHEEL ASSEMBLY FOR TROLLEYS

DECLARATION UNDER 37 C.F.R. §1.132

Commissioner for Patents
Washington, D.C. 20231

Sir:

I, Wesley Wilkinson, hereby declare that:

1. I am a citizen of Australia, residing at 28 Bemboka Avenue, Clayton South, Victoria, Australia 3169.

2. I have a Degree of Batchelor of Engineering (Mechanical / Ergonomics) 1985 (Swinburne) and a Graduate Diploma in Risk Management 1989 (Swinburne).

3. I am a qualified Engineer, Ergonomist, and Risk Manager employed by Work Systems Technology Pty. Ltd. (my own company) since August 1994.

4. I am the sole inventor of the above-identified U.S. patent application and make this Declaration in support of the said patent application.

5. DYNAMIC PERFORMANCE COMPARISON

Dynamic performance of typical trolley configurations are compared in Wilkinson, *Integrating Human Factors and Engineering Concepts Into Trolley Design*. A copy of this paper is attached and is incorporated herein by reference. This paper was presented at the Ergonomics Society of Australia conference at the Gold Coast in November 1997. The

paper discusses the dynamic performance of known trolley configurations.

A fifth wheel configuration is defined as means of providing a steering reaction point at the geometric/load center of a castor array/trolley, which may be achieved, for example, by swing arm systems that provide a centrally-located control wheel. The net result, as shown by applied mechanics analysis, is that the steering reaction point for the trolley is provided and eliminates the requirement for users to provide a compromise steering reaction about their spine with the force applied via the feet at the surface interface.

However, prior art solutions to steering problems have provided an answer to only part of the problem: the provision of the steering reaction point in a simplistic two-dimensional or mechanism-restricted three-dimensional terrain. In contrast, the terrain of a typical workplace contains speed humps, ramps, troughs, gutters, and the like. The third axis provided by such difficult terrain over which a trolley is required to travel provides further requirements for a trolley mechanism in order for the trolley to work safely and maintain stability. The prior art solutions have restricted travel via complicated mechanisms. Bottoming out of these mechanisms on ramp peaks and troughs may result in trolleys falling over or loss of control, which may injure the operator.

The added dynamic performance requirements for a trolley, combined with the traction requirements for the control wheel related to the load and surface, demonstrate the deficiencies of known swing arm and mechanical spring systems. In contrast, the claimed trolleys having gas struts are stable on crests and troughs.

6. COMMERCIAL SUCCESS

The commercial success of the claimed trolleys is demonstrated in niche markets for workplace applications having known injury histories. Difficulty has been experienced in educating potential users that there is a solution to the problems of known trolleys having fifth wheel arrangements such as swing arms and springs.

The claimed trolleys are designed to meet the strict requirements specified in statutory regulations for prevention of manual handling injury. Because the self-contained gas strut provides a key component for elimination of manual handling risks associated with trolley use, the claimed trolleys are being used by the following organizations:

A. Commonwealth Bank of Australia - Australia Wide

Coin trolleys have been specifically designed to address the issues of manual handling of coin (450+ units). The trolleys were introduced into a high risk application of known injury statistics, and high claims cost, with zero incidence of injury after implementation. The trolleys have been accepted as the national standard for the bank. A letter from an employee of the Commonwealth Bank of Australia is attached showing that the claimed trolleys (i.e., Ergo-Sled®) were the only trolleys capable of meeting the bank's performance requirements.

B. Toyota Motor Company of Australia - Port Melbourne

Trolleys have been specifically designed to be towed by battery-powered vehicles to deliver components to production lines. The purpose of the claimed control wheel technology was to eliminate the use of forklifts in the workplace and to prevent worker injury by collision (10 units).

C. Private Hospital Sector - Benchmark Group of Hospitals - Mornington Peninsula - Victoria

The claimed trolleys were introduced to address injury concerns. As a result, a zero incidence of injury associated with the trolleys having self-contained gas struts was achieved. Productivity was also significantly improved since only one worker was required to carry out the same task, which formerly required two workers (20 units). See the attached letter from Mr. Wesley Carter, Deputy CEO of FEGHSS, which shows displacement of other systems by the claimed trolleys. Further, the letter shows the superior benefit that the claimed trolleys have for reducing workplace injuries.

D. PBR Automotive - East Bentleigh Victoria

The claimed trolleys are used for delivery of Kan-Ban parts to production lines (6 units). The trolleys eliminate manual handling difficulties associated with former trolley designs.

E. Parkroyal & Centra Hotels - Various Australia Wide

The claimed trolleys have been introduced into various tasks, including room mini-bar replenishment trolleys (10 units).

7. SUPERIOR RESULTS WITH RESPECT TO INJURY

The superior dynamics provided by the claimed gas strut, combined with the compact simplicity of the design, have resulted in the development of a range of superior trolleys for workplaces where known injury risks exist.

In the attached letter from Ms. Cynthia McQuillan, Chief Executive Office of Beleura private hospital, she states that I began designing trolleys in 1994 to eliminate the neck and shoulder injuries that were occurring among the food service staff at Beleura private hospital. The claimed trolleys having gas struts were shown to Beleura private hospital on or shortly before July 7, 1995, after the filing of the corresponding Australian patent application. As a result of using the claimed trolleys, there have been no further work injuries among the food service staff. The result of using the claimed trolleys has been an extraordinary success as an engineering and occupational health and safety project. In known high risk applications, there has been zero incidence of injury with the claimed trolleys. See also the attached letter from Mr. Wesley Carter.

8. THIRD PARTY OPINION EVIDENCE

Also attached is a letter from Mr. Robert Fallshaw, Managing Director of Fallshaw Wheels & Castors. Mr. Fallshaw states that known trolleys have not been as maneuverable or as capable as being used on rough and unlevel floors as the claimed trolley design by WST (i.e., Work Systems Technology Pty. Ltd.) having a gas strut.

9. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further

Serial No. 09/113,547

that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: 22/8/2000 WESLEY WILKINSON

Attorney Docket: 1674/43755
PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: **WESLEY WILKINSON**

Serial No.: 08/945,017 Group Art Unit: 3611

Filed: OCTOBER 27, 1997 Examiner: C. BOTTORFF

Title: CONTROL WHEEL ASSEMBLY FOR TROLLEYS

SUPPLEMENTAL DECLARATION UNDER 37 C.F.R. §1.132

Commissioner for Patents
Washington, D.C. 20231

Sir:

I, Wesley WILKINSON, hereby declare that:

1. I am a citizen of Australia, residing at 28 Bemboka Avenue, Clayton South, Victoria, Australia 3169.

2. I am the sole inventor of the above-identified U.S. patent application and make this Declaration in support of said patent application.

3. **ORIGIN OF THE CLAIMED TROLLEY**

The claimed trolleys were developed as a result of Work Systems Technology, of which I am the principal, addressing manual handling concerns at the Beleura Private Hospital in Victoria Australia. The hospital was experiencing a number of debilitating manual handling injuries associated with the food service department of the hospital. The injuries were directly related to the use of heavy, conventional four castor meal trolleys used by the staff to deliver meals throughout the hospital. The workers experienced neck, shoulder, and back soft tissue injuries that prevented them from carrying out their duties. I was engaged to carry out an evaluation of the situation and recommend corrective actions.

The range of different types of food service trolleys available on the market was investigated with little success. None of the available products on the market were designed to meet OHS statutory legislation for Manual Handling. The available units that incorporated steering chassis had front or rear fixed wheels with the inherent mechanical deficiencies of non co-incident geometric and load centers,

thereby creating excessive steering forces which I reported in Wilkinson, "Integrating Human Factors and Engineering Concepts into Trolley Design". It was therefore determined that, since no suitable chassis was commercially available, experimentation with chassis design should be undertaken.

The appreciation that a control wheel must follow the ground was established and swing arm mechanisms were experimented with, such as that disclosed in Lloyd. With reference to the following theory on traction forces and wheel dynamics, it became clear to me that springs could not provide the correct characteristic. Due to the complexity of the dynamic requirements of the mechanism, it then took some time (2-3 months) to identify that a particular type of gas strut provided the required characteristic.

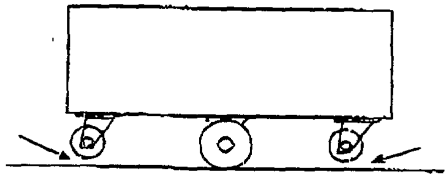
4. ANALYSIS OF TROLLEYS IN THE MARKETPLACE NOT HAVING A FIFTH CONTROL WHEEL

Applied mechanics analysis of forces in trolley chassis concluded that a resultant steering point that coincides with the center of mass of the loaded/unloaded trolley was needed in order to eliminate excessive operating forces that make control of the direction of the trolley physically difficult for the user. A resultant steering reaction point is the point at which the trolley effectively steers about (the pivot point).

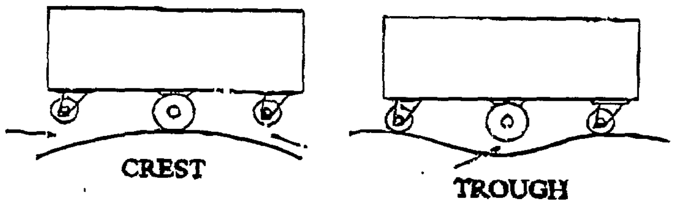
For a trolley with all castors, the operators spine/feet would provide the steering reaction point. Moving the trolley requires a pushing force in the desired direction and a constant restraining force applied about the feet requiring a twisting reaction about the spine to successfully control the direction of the trolley. The restraining/change of direction force is the part that the trolley user finds most difficult.

The problem is typified by the behaviour of the standard supermarket trolley or cart with it's four castor configuration.

The only available chassis configuration in the market place that addressed the problem was that of the market trolley with its center axle and large wheels on either side of the trolley with two castors on each end of the trolley. This configuration has disadvantages due to the rocking characteristic created by supporting the load with the large center wheels while the castors are effectively off the ground.



Market Trolley Configuration



Market Trolley Configuration difficulty with terrain

The market configuration has other deficiencies, when dealing with ramps and dips in the normal terrain encountered in the work environment (as shown above). On the crest of a ramp, the center wheels support the trolley with a large gap between one set of castors and the ground. The load on the trolley may shift and fall onto the user or onto the ground.

When a dip is encountered the weight of the trolley is supported on the four castors leaving the large center wheels clear of the ground. The trolley then has no effective steering reaction point and becomes uncontrollable.

Of the available trolleys in the marketplace, none had a fifth wheel design.

5. <u>REQUIREMENTS OF A FIFTH CONTROL WHEEL</u>

Having carried out the analysis of trolley chassis dynamics from engineering principles, I established the need for a steering reaction point located at a point in the chassis that was co-incident with the geometric and load center of the trolley. In other words the chassis must be designed to have the load center of mass (unloaded and loaded) and the geometric center coincident. This has been referred to as a "fifth wheel system".

The required fifth wheel system must have particular attributes to allow it to perform properly dynamically. These attributes include:

A UPWARDS AND DOWNWARDS VERTICAL.MOVEMENT FOR UNDULATING TERRAIN

The fifth wheel must be in contact with the ground over a range of travel consistent with the terrain in which the trolley is to be used. The control wheel should be allowed to move in a vertical direction to deal with normal ramps and dips experienced in workplaces and public places. With the horizontal surface as the reference, the wheel must travel in an upwards and downwards direction relative to the horizontal.

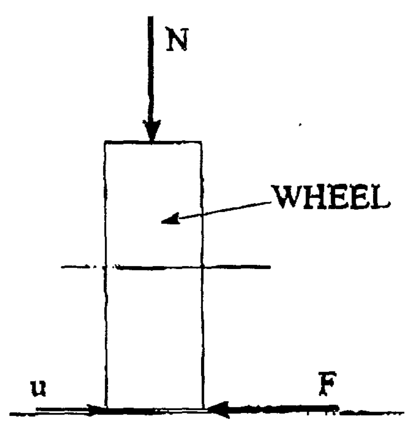
As I discussed at the August 2, 2000 interview, Lloyd must not have built his design since he only considered the upward travel and therefore his design would not have worked when the trolley encountered a trough. The fifth wheel of Lloyd could not follow the contact surface if it passed below the horizontal reference. Lloyd appears to have been hypothetical and theoretical without actual proto-typing and testing.

B. SUFFICIENT FORCE TO PROVIDE LATERAL TRACTION

At any point in the vertical travel, the control wheel must have sufficient contact force with the ground to provide the necessary lateral traction to prevent the wheel from skidding and to allow the steering reaction point to function, loaded or unloaded. The control wheel is required to be in traction with the ground without drift in order to eliminate the requirement for the operator to provide a restraining force, especially on a slope. To be in traction with the ground, consideration of the friction equation is required:

$F=uN$,

where F = force (e.g., trolley mass wanting to move sideways down a grade);
u = coefficient of friction of wheel/tire on floor surface; and
N = force in direction normal to that of movement (i.e., downforce).



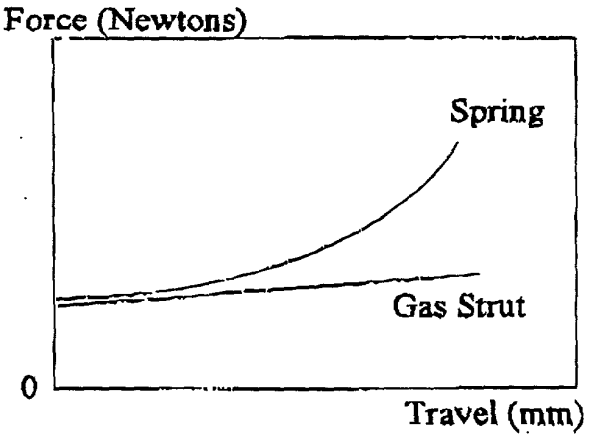
Friction Relationship

F dramatically increases on lateral slopes, while the normal force N stays constant due to the component of the mass of the trolley acting down the slope increasing F.

To prevent slippage uN must exceed any force F experienced in normal use of the trolley. The typical sideways slope of the supermarket parking lot is the classic example of the terrain where the correct normal force is critical for satisfactory performance, both loaded and unloaded.

C. RELATIVELY CONSTANT FORCE OVER VERTICAL TRAVEL

The force N must also not exceed the force which would lift the unladen trolley off the ground. The force N must also not be exceeded throughout the control wheel's vertical travel. Otherwise, the unladen trolley cannot traverse humps or crests since the control wheel would not be able to move vertically relative to the trolley if N is relatively too large. Because force N is critical, it must be maximised at the point just before the unladen trolley lifts off the ground. This requirement implies that the force is relatively constant over the vertical travel, something that is **not** achievable with mechanical springs where the force increases proportionally to travel in a non-linear relationship. The following graph was drawn on the whiteboard during the August 2, 2000 interview:



The transparent gas strut that I demonstrated at the interview showed the components and method of operation of the strut. It could be clearly seen that the strut comprised a pressurised chamber containing a piston and rod which passes through a seal and out of one end of the chamber. It was also able to be seen that there was no other means of providing resilience in the chamber other than the gas (i.e., there were no mechanical springs). A valving hole through the piston allows

equalization of pressure on either side of the piston during compression of the strut. The rest position of the gas is the extended position. The force provided by the constant gas pressure in the chamber over the larger area of the piston on the non-rod side is greater than that on the rod side since the rod effectively reduces the piston surface area. The reduction in cylinder volume caused by the cylinder rod during compression causes the small rise in pressure and therefore force over the travel of the piston. Movement of the piston is counteracted by the force imbalance which returns the piston to the extended position. Damping is achieved by seal friction during travel and oil at the extremes of travel.

6. **REQUIRED FORCES ARE SATISFIED BY A GAS STRUT**

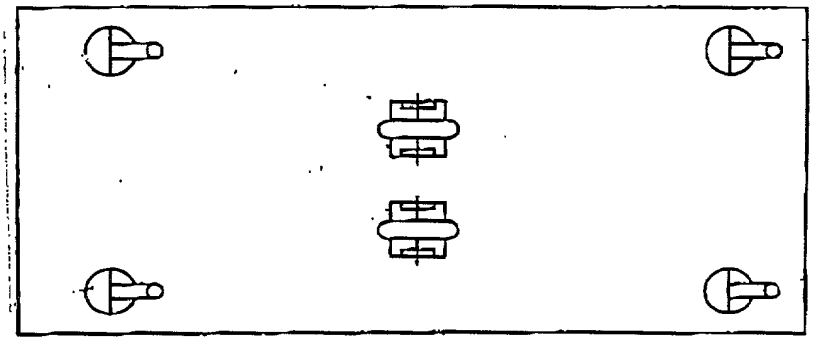
The normal force N is provided by a gas strut in the claimed trolley design for a number of reasons:

A. The gas strut provides a near linear force relationship. See Stabilus manual. As noted above, coil springs cannot provide the required constant force range throughout the entire range of required travel. At the August 2, 2000 interview, I demonstrated a gas strut's almost linear force range on an analogue bathroom scale in comparison to a unit with a spring of equivalent force at the appropriate free length. When compressed, the spring quickly exceeded the force maximum required to use the unladen trolley without lifting it of the ground. At full travel, the spring provided a force double that required. This would of course lift the unladen trolley off the ground.

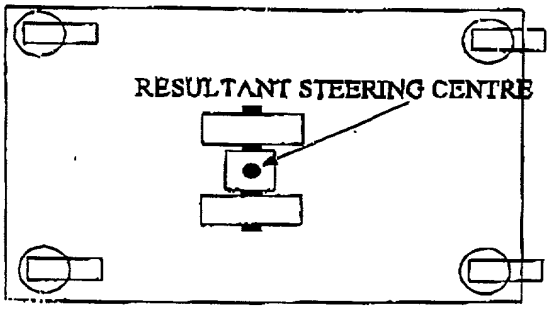
B. The force N must also provide sufficient force to retain control wheel traction of the loaded trolley on a lateral grade. The design of the gas strut provides the normal force N and integral damping to control the extension direction of the travel while preventing control wheel bounce.

C. The gas strut also provides a compact convenient means of providing the desired dynamic characteristics for the control wheel mechanism. The gas strut simplifies mechanism and eliminates parts. Further, the force N can be specified exactly to meet trolley requirements (not able to be easily achieved with mechanical springs).

D. Dual pairs of gas struts and wheels may used on heavy load trolleys to assist lateral traction:



E. Dual wheels and one gas strut may also be used to gain additional traction.



Four castor trolley with one column (strut) and dual wheels

7. COMMERCIAL SUCCESS

Over the course of the past few years some 600 trolleys have been sold into known manual handling problem workplace situations. Some 450 of these trolleys are Ergo-Sled® Coin Trolleys sold to the Commonwealth Bank of Australia (CBA) specifically to address the manual handling injury experience of handling coin within the banks. The attached 1.132 Declaration of Ms. Bray shows that the claimed trolleys having a gas strut have displaced the previously-used trolleys for the CBA. Since the introduction of the trolleys, the injury experience has diminished to almost zero with the CBA being ecstatic about the risk management performance of the trolleys. There have been no known manual handling injuries resulting from the other units sold to date.

The success of the fifth wheel design in reducing operating forces and improving handling dynamics can be directly attributed to the incorporation of the gas strut since it provides the correct control wheel characteristic specifically matched to the trolley application.

8. **SUMMARY**

The claimed trolley design addresses all of the dynamic requirements for a control wheel to work effectively over the types of surfaces expected in workplaces and public places. It is not comparable with Lloyd since Lloyd uses swing arm designs as a basis to address the issue of lateral movement. The claimed trolley design addresses the dynamic performance issues significantly better than any other prior art mechanism under the fifth wheel or control wheel concept, due to the research and development work carried out to determine the required characteristics and develop the gas strut control wheel column.

The claimed trolley design has:

a. a minimum number of components compared to all other control wheel designs;

b. is specifically tuned to the particular trolley requirements via specification of column travel and the force characteristic of the gas strut;

c. functions correctly whether the trolley is loaded or unloaded;

d. copes with ramps, crests, and dips (Lloyd does not consider dips and is indicative that it has not been tried on undulating surfaces);

e. is superior in dynamic performance to all other designs;

f. is economical to fit to trolleys during manufacture;

g. is commercially viable as part of a trolley design concept aimed at minimisation of operating forces; and

h. combined with the other design features of Wilkinson's trolleys, there is an extensive and proven injury prevention history resulting from the superior engineering and ergonomic design features.

Serial No. 09/113,547

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: 25 JANUARY 2001

WESLEY WILKINSON